

Applicant : Somashekar Ramachandran  
Subrahmanyam  
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Attorney's Docket No.: 15786-016001

### REMARKS

Applicant understands from a voicemail exchange with the Examiner that Applicant will have the opportunity to consult with the Examiner regarding this Response before the Examiner issues an additional Office Action.

Claims 2-5, 8-13, 15-16, 19-20, 22-25, and 28-39 are pending. Claims 11 and 34 have been amended only to provide additional clarity as to the scope of the claims. No new matter has been added.

Claims 2-5, 8-13, 15, 16, 19, 20 and 28-39 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as unpatentable over claims 1, 12, 15, 16, 20, 21, 26, 29, and 30 of copending Application No. 10/676,275. Applicant has filed herewith a terminal disclaimer pursuant to 37 CFR 1.321 disclaiming any term to the instant application beyond that of Application No. 10/676,275. Accordingly, Applicant requests that the rejection be withdrawn.

Claims 2-5, 8-13, 15, 16, 19, 20, and 28-39 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as unpatentable over claims 1-8, 29-33, 36-39, and 46-48 of copending application No. 10/651,452. Applicant has filed herewith a terminal disclaimer pursuant to 37 CFR 1.321 disclaiming any term to the instant application beyond that of Application No. 10/651,452. Accordingly, Applicant requests that the rejection be withdrawn.

Claims 11-13, 16, 19, 10 and 28-39 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,040,125 to Okamura et al. ("Okamura"). Claims 2-5, 8-13, 15, 16, 19, 20, and 29-39 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,877,940 to Bangs et al. ("Bangs"). Applicant respectfully traverses the rejection as requests reconsideration in light of the following remarks.

#### Okumura

The instant invention is directed to methods, devices and systems for efficiently modeling a weld, for example, in a CAD system. Okumura, by contrast, is directed to a method for

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determining the position of various components in an arc welding system by monitoring the shape and/or position of a welding arc. Col. 1:9-15. Okumura does not model a weld, in a manner that involves identifying the edges of components of manufacture to be welded together and, forming a name attribute based on the identifications of the edges of components of manufacture to be welded together and assigning that name attribute to an edge of a weld bead, as required by the claims of the instant application. Instead, Okumura discloses using a vision system to pick up the shape of the welding arc and by analyzing that shape, determining, for example, the location of the welding line. Col 8:6-14.

Claim 11, as amended, requires a method of operation in a computing environment. The method comprises selecting within the computing environment, an edge of a weld bead whose data representation is formed based on one or more data representations of one or more edges of one or more components of manufacture to be welded together using the weld bead at the one or more edges when manufacturing the article. The method further comprises retrieving from a source within the computing environment, one or more identifications identifying both the one or more edges of the one or more components and the one or more components, forming within the computing environment, a name attribute based at least in part on the retrieved one or more identifications, assigning within the computing environment, the name attribute to the selected edge of the weld bead.

Okumura does not disclose or suggest these limitations. Applicant acknowledges that Okumura appears to disclose storing the position of a weld line after it has been detected on the basis of analysis of the arc shape. Col 8:62-Col 9:3. Nowhere, however, does Okumura disclose or suggest "retrieving from a source within the computing environment, one or more identifications identifying both the one or more edges of the one or more components and the one or more components". As discussed above, Okumura detects the shape of the welding arc and analyzes that shape to determine the location of the welding line. Okumura does not retrieve any information about components or edges of components associated with the weld. Further, Okumura does not form "a name attribute based at least in part on the retrieved one or more identifications". As discussed above, Okumura does not retrieve this kind of information, and

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accordingly does not form a name attribute using the claimed identification information. Finally, Okumura does not assign the name attribute to the selected edge of the weld bead," as required by claim 11. Accordingly, Applicant submits that Claim 11 is allowable over Okumura. Claims 12-13 depend either directly or indirectly from claim 11 and are allowable for at least the reasons claim 11 is allowable.

Claim 31 requires in pertinent part an apparatus having stored therein a plurality of instructions designed to enable the apparatus to select within the apparatus an edge of a weld bead which data representation is formed based on one or more data representations of one or more edges of one or more components of an article of manufacture to be welded using the weld bead at the one or more edges when manufacturing the article. The instructions also enable the apparatus to retrieve from a source within the apparatus, one or more identifications identifying both the one or more edges of the one or more components and the one or more components, form a name attribute within the apparatus, based at least in part on the retrieved one or more identifications, and assign within the apparatus, the name attribute to the selected edge of the weld bead.

As set forth above, Okumura does not disclose or suggest the steps of retrieving identifications identifying both the one or more edges of the one or more components and the one or more components, forming a name attribute based on those identifications, or assigning the name attribute to a selected edge of a weld bead. Rather, Okumura discloses determining and storing the position of a weld line based on analysis of the shape of a welding arc. Col. 7:46-62; Col 8:62-Col 9:3.

Claim 34 requires a method to represent a weld bead to be used to weld one or more components of an article of manufacture at one or more edges of the one or more components in the manufacturing of the article outside the computing environment. The method comprises selecting one or more edges of the one or more components of the article of manufacture to be welded; generating a data representation of a wire body for each of the one or more selected edges; and generating a data representation of a final wire body based on the data representations of a wire body for each of the one or more selected edges, where the final wire body represents

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the weld bead. Applicant submits that Okumura does not disclose selecting one or more edges of one or more components of an article of manufacture to be welded. Rather, Okumura discloses imaging the shape of the welding arc. Col. 7:46-51. Moreover, Applicant respectfully submits that Okumura does not disclose or suggest generating a data representation of a wire body either of a selected edge or a weld bead as required by claim 34. As set forth above, Okumura only discloses imaging the shape of a welding arc and from analysis of that image, determining the positions of various elements including the weld line. Accordingly, Applicant submits that claim 34 is allowable over Okumura. Claims 2-5, 8-10 and 35 depend either directly or indirectly from claim 34 and are allowable for at least the reasons claim 34 is allowable.

Claim 36 requires in pertinent part a machine readable article comprising a plurality of machine executable instructions stored in a machine readable storage medium. The instructions are designed to enable an apparatus to select one or more edges of one or more components of an article of manufacture to be welded; generate a data representation of a wire body for each of the one or more selected edges; and generate a data representation of a final wire body based on the data representations of a wire body for each of the one or more selected edges. For the reasons set forth above, Applicant submits that Okumura does not disclose or suggest selecting one or edges of components of an article of manufacture to be welded, generating a data representation of a wire body for each of the one or more selected edges; or generating a data representation of a final wire body based on the data representations of a wire body for each of the one or more selected edges. Accordingly, Applicant submits that claim 36 is allowable over Okumura. Claims 15-16, 19-20, and 37 depend, either directly or indirectly from claim 36 and are therefore allowable for at least the reasons claim 36 is allowable.

Claim 38 requires an apparatus having a storage medium having stored therein. The apparatus has a plurality of instructions designed to enable the apparatus to select one or more edges of one or more components of an article of manufacture to be welded; generate a data representation of a wire body for each of the one or more selected edges; and generate a data representation of a final wire body based on the data representations of a wire body for each of the one or more selected edges. For the reasons set forth above, Applicant submits that Okumura

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does not disclose or suggest selecting one or more edges of one or more components of an article of manufacture to be welded; generating a data representation of a wire body for each of the one or more selected edges; or generating a data representation of a final wire body based on the data representations of a wire body for each of the one or more selected edges. Accordingly, Applicant submits that claim 38 is allowable over Okumura. Claims 22-25, 28-30, and 39 depend, either directly or indirectly from claim 38 and are therefore allowable for at least the reasons claim 38 is allowable.

### Bangs

Like Okumura, Bangs is directed to a system that uses machine vision to monitor and control the welding process, rather than modeling welds in a computer environment, which is the subject matter of the instant Application. Where Okumura analyzes the shape of the welding arc, Bangs analyzes the shape of the welding puddle. Neither reference is concerned with modeling welds or weld beads, for example, in a CAD environment, naming conventions or the forming of wire models as is set forth in the claims.

Claim 11, as amended, requires a method of operation in a computing environment. The method comprises selecting within the computing environment, an edge of a weld bead whose data representation is formed based on one or more data representations of one or more edges of one or more components of manufacture to be welded together using the weld bead at the one or more edges when manufacturing the article. The method further comprises retrieving from a source within the computing environment, one or more identifications identifying both the one or more edges of the one or more components and the one or more components, forming within the computing environment, a name attribute based at least in part on the retrieved one or more identifications, assigning within the computing environment, the name attribute to the selected edge of the weld bead.

Applicant submits that Bangs does not disclose these limitations. Bangs discloses imaging a weld puddle. Col. 3: 14-16. Applicant acknowledges that Bangs also discloses locating the edge of a weld puddle. Col. 3: 17-21. Applicant submits that Bangs' arguable selection of the edge of a weld puddle does not disclose selecting the an edge of a weld bead as



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required by claim 11. Even if the electronic image of the weld puddle of Bangs is considered a data representation of an edge of a weld bead, which it is not, Bangs does not disclose this data representation being based on one or more data representations of one or more edges of one or more components of manufacture to be welded together. Moreover, Bangs does not disclose retrieving from a source within the computing environment, one or more identifications identifying both the one or more edges of the one or more components and the one or more components, forming within the computing environment, a name attribute based at least in part on the retrieved one or more identifications, assigning within the computing environment, the name attribute to the selected edge of the weld bead. Rather, Bangs discloses tracking of a weld puddle. Col. 9:59-62. Bangs does disclose the possibility that the edges of components of manufacture might not be well aligned with one another. Col:10:28-36. Bangs does not, however, disclose identifying those edges, assigning a name attribute on the basis of those identifications or assigning the name attribute to the edge of a weld bead, as required by claim 11.

Accordingly, Applicant submits that claim 11 is allowable over Bangs. Claims 12-13 depend either directly or indirectly from claim 11 and are allowable for at least the reasons claim 11 is allowable.

Claim 31 requires in pertinent part an apparatus having stored therein a plurality of instructions designed to enable the apparatus to select within the apparatus an edge of a weld bead which data representation is formed based on one or more data representations of one or more edges of one or more components of an article of manufacture to be welded using the weld bead at the one or more edges when manufacturing the article. The instructions also enable the apparatus to retrieve from a source within the apparatus, one or more identifications identifying both the one or more edges of the one or more components and the one or more components, form a name attribute within the apparatus, based at least in part on the retrieved one or more identifications, and assign within the apparatus, the name attribute to the selected edge of the weld bead.

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As set forth above, even if Bangs' imaging of a weld puddle can be considered selecting the edge of a weld bead, which it cannot, Bangs does not disclose or suggest an edge of a weld bead which data representation is formed based on one or more data representations of one or more edges of one or more components of an article of manufacture to be welded as required by claim 31. Moreover, Bangs does not disclose retrieving from a source within the computing environment, one or more identifications identifying both the one or more edges of the one or more components and the one or more components, forming within the computing environment, a name attribute based at least in part on the retrieved one or more identifications, assigning within the computing environment, the name attribute to the selected edge of the weld bead. Accordingly, Applicant submits that claim 31 is allowable over Bangs. Claims 32-33 depend, either directly or indirectly from claim 31 and are allowable for at least the reasons claim 31 is allowable.

Claim 34 requires a method to represent a weld bead to be used to weld one or more components of an article of manufacture at one or more edges of the one or more components in the manufacturing of the article outside the computing environment. The method comprises selecting one or more edges of the one or more components of the article of manufacture to be welded; generating a data representation of a wire body for each of the one or more selected edges; and generating a data representation of a final wire body based on the data representations of a wire body for each of the one or more selected edges, where the final wire body represents the weld bead. Applicant submits that Bangs does not disclose or suggest selecting the one or more edges of one or more components of manufacture to be welded together as required by claim 34. Rather, as set forth above, Bangs only discloses imaging a weld puddle. Col. 3:5:16. Moreover, Applicant respectfully submits that Bangs does not disclose or suggest generating a data representation of a wire body of either a selected edge or a weld bead as required by claim 34. Bangs does not discuss generating data representations of wire bodies at all. Rather, Bangs discloses the control of various welding parameters such as filler wire input. Col. 1: 58:61. Accordingly, Applicant submits that claim 34 is allowable over Bangs. Claims 2-5, 8-10 and 35

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depend either directly or indirectly from claim 34 and are allowable for at least the reasons claim 34 is allowable.

Claim 36 requires in pertinent part a machine readable article comprising a plurality of machine executable instructions stored in a machine readable storage medium. The instructions are designed to enable an apparatus to select one or more edges of one or more components of an article of manufacture to be welded; generate a data representation of a wire body for each of the one or more selected edges; and generate a data representation of a final wire body based on the data representations of a wire body for each of the one or more selected edges. For the reasons set forth above, Applicant submits that Bangs does not disclose or suggest selecting one or edges of components of an article of manufacture to be welded, generating a data representation of a wire body for each of the one or more selected edges; or generating a data representation of a final wire body based on the data representations of a wire body for each of the one or more selected edges. Accordingly, Applicant submits that claim 36 is allowable over Bangs. Claims 15-16, 19-20, and 37 depend, either directly or indirectly from claim 36 and are therefore allowable for at least the reasons claim 36 is allowable.

Claim 38 requires an apparatus having a plurality of instructions designed to enable the apparatus to select one or more edges of one or more components of an article of manufacture to be welded; generate a data representation of a wire body for each of the one or more selected edges; and generate a data representation of a final wire body based on the data representations of a wire body for each of the one or more selected edges. For the reasons set forth above, Applicant submits that Bangs does not disclose or suggest selecting one or more edges of one or more components of an article of manufacture to be welded; generating a data representation of a wire body for each of the one or more selected edges; or generating a data representation of a final wire body based on the data representations of a wire body for each of the one or more selected edges. Accordingly, Applicant submits that claim 38 is allowable over Bangs. Claims 22-25, 28-30 and 39 depend, either directly or indirectly from claim 38 and are therefore allowable for at least the reasons claim 38 is allowable.




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Respectfully submitted,

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